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What is claimed is:**1. A transmitter apparatus comprising:**

5 a microphone operable to produce electrical signals representing acoustic utterances;

10 a transmitter circuit in communication with said microphone and operable to transmit electromagnetic radiation representing said acoustic utterances for reception by a receiver;

15 a housing having first and second opposite end portions and a retention portion between said first and second opposite end portions, said retention portion being operable to cooperate with a receptacle on a breathing apparatus to facilitate installation and removal of said transmitter apparatus on said breathing apparatus

20 2. The transmitter apparatus of claim 1 wherein said retention portion is operable to frictionally engage with said receptacle on said breathing apparatus.

25 3. The transmitter apparatus of claim 1 further comprising a compensator for compensating for distortions made to said acoustic utterances.

4. The transmitter apparatus of claim 3 wherein said compensator filters said acoustic utterances made by a wearer.

30 5. The transmitter apparatus of claim 3 wherein said compensator comprises a compensator circuit for electrically compensating for said distortions.

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6. The apparatus of claim 1 wherein said microphone is on one of said first and second opposite end portions of said housing.
- 5 7. The apparatus of claim 1 further comprising power terminals for cooperating with a power source to permit said power source to provide energy for powering said transmitter apparatus.
- 10 8. The apparatus of claim 7 wherein said power terminals are inside said housing.
9. The apparatus of claim 7 further comprising a charging port for receiving energy supplied externally to said housing and for providing said energy to said power terminals.
- 15 10. The apparatus of claim 9 wherein said charging port comprises a charging socket on an end of said housing, opposite said end on which said microphone is located.
- 20 11. The apparatus of claim 1 wherein said retention portion is curved.
12. The apparatus of claim 1 wherein said retention portion is concave.
- 25 13. The apparatus of claim 1 wherein said retention portion has a leading edge and a trailing edge, said leading edge being thicker than said trailing edge.
14. The apparatus of claim 1 wherein said retention portion has a wedge-shaped cross section.
- 30 15. The apparatus of claim 1 wherein said housing is modular.

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16. The apparatus of claim 1, further comprising a breathing apparatus having a receptacle for receiving and holding said housing therein.
- 5 17. A system comprising the apparatus of claim 1 and further comprising a receiver operable to be supported by a wearer of the breathing apparatus and operable to audibly broadcast a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.
- 10 18. The system of claim 17 wherein said receiver is operable to produce signals representing said acoustic utterances in response to said electromagnetic radiation and wherein said system further comprises a repeater operable to re-transmit said signals to a remote receiver.
- 15 19. A transmitter apparatus comprising:
 - means for producing electrical signals representing acoustic utterances;
 - 20 means, in communication with said means for producing, for transmitting electromagnetic radiation representing said acoustic utterances for reception by a receiver;
 - 25 means for housing said means for producing and said means for transmitting; and
 - 30 means for retaining said means for housing in a receptacle on a breathing apparatus to facilitate installation of said transmitter apparatus into said breathing apparatus and to facilitate removal of the transmitter apparatus from said breathing apparatus.

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means on the breathing apparatus for transmitting electromagnetic radiation representing acoustic utterances made by the wearer of the breathing apparatus for reception by a receiver supported by the wearer; and

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means for audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at said receiver.

10 26. A method of facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the method comprising:

15 transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by at least one wearer of a breathing apparatus, for reception by a plurality of receivers supported by respective wearers within a range; and

20 audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at at least one of said receivers.

25 27. A system facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the system comprising:

30 means for transmitting from a transmitter on the breathing apparatus electromagnetic radiation representing acoustic utterances made by at least one of the wearers of the breathing

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apparatus, for reception by a plurality of receivers supported by respective wearers within the range; and

5 means for audibly broadcasting a reproduction of said acoustic utterances in response to receipt of said electromagnetic radiation at at least one of said receivers.

10 28. A system facilitating communications between wearers of a breathing apparatus and a listener within a range of at least one of the wearers of the breathing apparatus, the system comprising:

15 a plurality of transmitters held in respective receptacles in respective breathing apparatuses for transmitting electromagnetic radiation representing acoustic utterances made by at least one of the wearers;

20 a plurality of receivers supported by respective wearers, for receiving said electromagnetic radiation representing said acoustic utterances from at least one of said transmitters; and

25 a plurality of speakers supported by said respective wearers, said speakers being controlled by respective said receivers to audibly broadcast a reproduction of said acoustic utterances represented by said electromagnetic radiation transmitted by at least one of said transmitters.

29. A method of communicating the occurrence of an event indicated by a pre-defined audio signal, the method comprising:

30 detecting a first pre-defined audio signal; and

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transmitting a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.

30. The method of claim 29 further comprising wearing a detector capable 5 of detecting said first pre-defined audio signal and wearing a transmitter capable of transmitting said pre-defined radio frequency signal.
31. The method of claim 29 wherein transmitting comprises transmitting a 10 message indicative of the occurrence of said event.
32. The method of claim 29 wherein transmitting comprises transmitting a homing signal.
- 15 33. The method of claim 31 further comprising transmitting a homing signal.
34. The method of claim 29 further comprising detecting said event and 20 producing said first pre-defined audio signal in response to detection of said event.
35. The method of claim 34 further comprising wearing a detector operable to detect said event.
- 25 36. The method of claim 29 further comprising producing a second pre-defined audio signal in response to receiving said first pre-defined radio frequency signal.
37. The method of claim 36 wherein producing said second pre-defined 30 audio signal comprises producing a synthesized voice message.

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38. An apparatus for communicating the occurrence of an event indicated by a pre-defined audio signal, the apparatus comprising:
 - means for detecting a first pre-defined audio signal; and
 - 5 means for transmitting a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.
- 10 39. The apparatus of claim 38 further comprising means to facilitate wearing said means for detecting said first pre-defined audio signal and said means for transmitting.
- 15 40. The apparatus of claim 38 wherein said means for transmitting is operable to transmit a message indicative of said event.
- 20 41. The apparatus of claim 38 wherein said means for transmitting is operable to transmit a homing signal.
- 25 42. The apparatus of claim 40 wherein said means for transmitting is operable to transmit a homing signal.
43. A system comprising the apparatus of claim 38 and further comprising means for detecting said event and means for producing said first pre-defined audio signal in response to detection of said event.
44. The system of claim 43 further comprising means to facilitate wearing of said means for detecting said event.
- 30 45. A system comprising the apparatus of claim 38 and further comprising means for producing a second pre-defined audio signal in response to receiving said first pre-defined radio frequency signal.

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46. The system of claim 45 wherein said means for producing said second pre-defined audio signal comprises means for producing a synthesized voice message.

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47. An apparatus for communicating the occurrence of an event indicated by a pre-defined audio signal, the apparatus comprising:

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a detector operable to detect a first pre-defined audio signal;
and

a transmitter operable to transmit a pre-defined radio frequency signal in response to detection of said first pre-defined audio signal.

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48. The apparatus of claim 47 further comprising a strap connected to said detector and said transmitter to facilitate wearing said detector and said transmitter on a person.

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49. The apparatus of claim 47 wherein said transmitter is operable to transmit a message indicative of said event.

50. The apparatus of claim 47 wherein said transmitter is operable to transmit a homing signal.

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51. The apparatus of claim 49 wherein said transmitter is operable to transmit a homing signal.

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52. A system comprising the apparatus of claim 47 and further comprising an event detector and an audio signal generator in communication with

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said event detector for generating said first pre-defined audio signal in response to detection of said event.

5 53. The system of claim 52 further comprising a strap connected to said event detector and said audio signal generator to facilitate wearing said event detector and said audio signal generator on a person.

10 54. A system comprising the apparatus of claim 47 and further comprising a second audio signal generator for generating a second audio signal in response to receipt of said first pre-defined radio signal.

15 55. The system of claim 54 wherein said second audio signal generator comprises a voice synthesizer for producing a voice synthesized message.

56. A method of facilitating communications for a wearer of a mask, the method comprising:

20 receiving a removable transmitter apparatus in a receptacle in the mask, to permit said transmitter apparatus to receive utterances made by the wearer of the mask and to transmit electromagnetic radiation representing said utterances for reception by a receiver; and

25 frictionally engaging said removable transmitter apparatus in said receptacle to hold said removable transmitter apparatus therein.

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57. The method of claim 56 wherein receiving said transmitter apparatus comprises receiving said transmitter apparatus in said receptacle on a user-facing side of said mask.
- 5 58. The method of claim 56 wherein receiving comprises receiving said transmitter apparatus between a breathing valve and a chin seal defining said receptacle in said mask.
- 10 59. The method of claim 58 wherein receiving further comprises receiving a portion of said chin seal between opposite end portions of said transmitter apparatus.
- 15 60. The method of claim 59 wherein receiving further comprises receiving a portion of said chin seal in a concave portion of said transmitter apparatus.
61. The method of claim 59 wherein receiving further comprises receiving a portion of said chin seal adjacent a curved portion of said transmitter.

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